01/29/14 Agenda

- Chapter 6 Makeup Tests:
  - If you missed the Chapter 6 Test, it's time to schedule your make up test.

- Chapter 6 Retake:
  - If you're interested in taking a retake, the Remediation Packet along with any missing homework is due today.

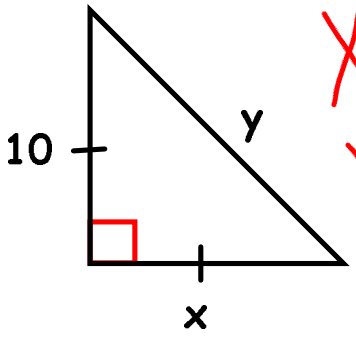
- Review Homework:
  - Worksheet 2 - 45-45-90 Triangles (period 2)
  - Worksheet 3 - 30-60-90 Triangles

- Section 7.4 - Special Right Triangles
  - Find sides given an integer hypotenuse

- Homework
  - Worksheet 4 - Special Right Triangles

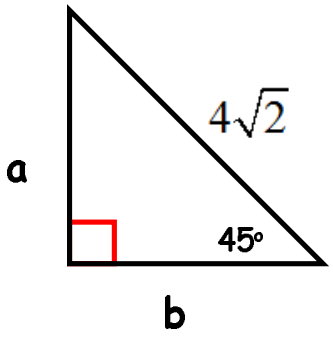
Warm Up - Homework Out!

Find the missing sides:



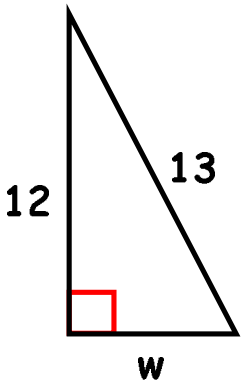
$x = 10$

$y = 10\sqrt{2}$

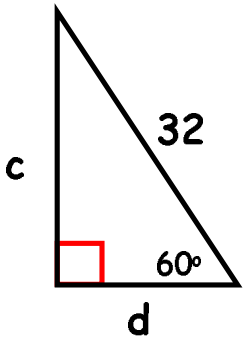


$a = 4$

$b = 4$



$w = 5$



$c = 16\sqrt{3}$

$d = 16$

Section 7.4 - Special Right Triangles Target 7B

Goal:	Use special right triangles (45-45-90 and 30-60-90) to find the missing side lengths.
Todays Takeaways:	1. Be able to find the missing sides of a 45-45-90 or 30-60-90 triangle given an integer for the hypotenuse (45-45-90Δ) or the longer leg (30-60-90Δ) .
SWBAT	

Section 7.4 - Special Right Triangles Target 7B

Review from last week:

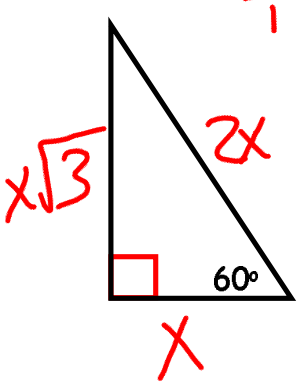
Sides of a 45-45-90 Δ are:

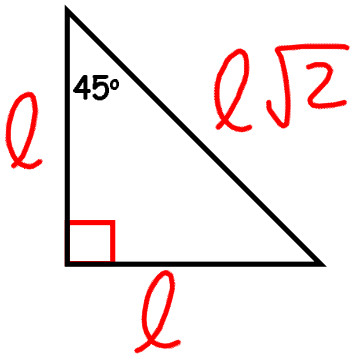
$\ell, \ell, \ell\sqrt{2}$

Sides of a 30-60-90 Δ are:

$x, x\sqrt{3}, 2x$

Label them:





Section 7.4 - Special Right Triangles Target 7B

Here's a 30-60-90, which side am I given?

$3\sqrt{3} \cdot \sqrt{3} = 9$

What is different from previous examples?

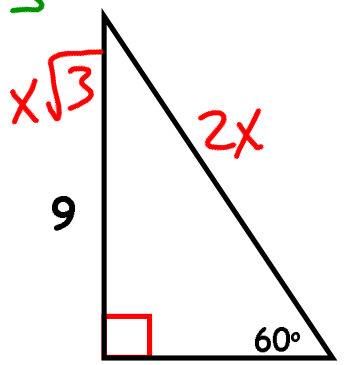
$x\sqrt{3} = 9$

$\div \sqrt{3} \iff * \frac{\sqrt{3}}{3}$

$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{9}{\sqrt{3}}$

$x = \frac{9}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{9\sqrt{3}}{3}$

$= 3\sqrt{3}$



$x = 3\sqrt{3}$

Let's find the missing sides

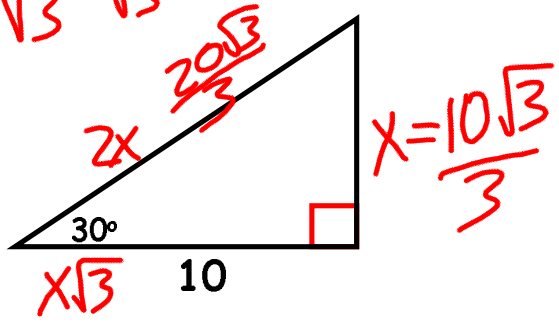
Section 7.4 - Special Right Triangles Target 7B

Find the missing sides:

REMEMBER $\div\sqrt{3} \Leftrightarrow * \frac{\sqrt{3}}{3}$

$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{10}{\sqrt{3}}$

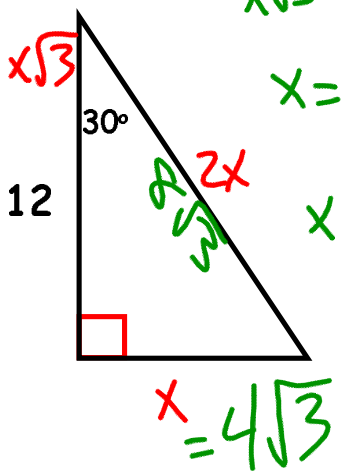
$x = \frac{10}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{10\sqrt{3}}{3}$



$x\sqrt{3} = 12$

$x = \frac{12 \cdot \sqrt{3}}{3}$

$x = 4\sqrt{3}$



Section 7.4 - Special Right Triangles Target 7B

Here's a 45-45-90, which side am I given?

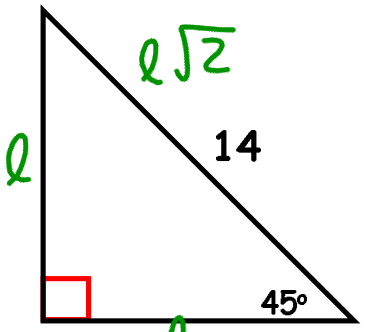
What is different from previous examples?

$\div\sqrt{2} \Leftrightarrow * \frac{\sqrt{2}}{2}$

$\frac{\ell\sqrt{2}}{\sqrt{2}} = \frac{14}{\sqrt{2}}$

$\ell = \frac{14}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{14\sqrt{2}}{2}$

$= 7\sqrt{2}$



$\ell = 7\sqrt{2}$

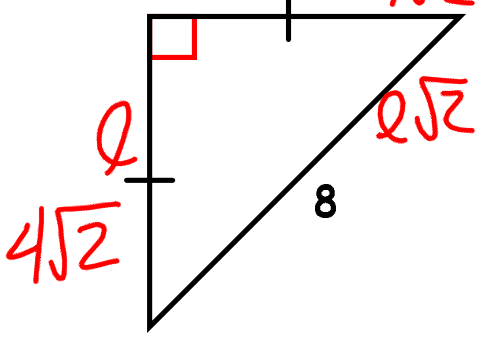
Section 7.4 - Special Right Triangles Target 7B

Find the missing sides:

REMEMBER $\div\sqrt{2} \Leftrightarrow * \frac{\sqrt{2}}{2}$

$\frac{\ell\sqrt{2}}{\sqrt{2}} = \frac{8}{\sqrt{2}}$ $\ell = \frac{8}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{8\sqrt{2}}{2}$

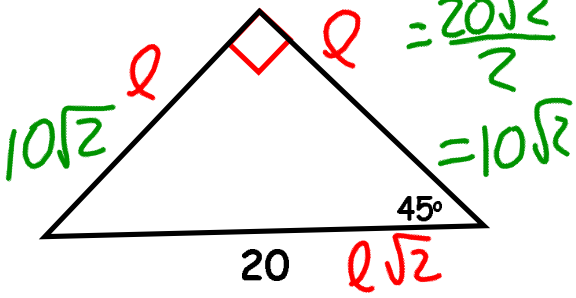
$\ell = 4\sqrt{2}$



$\ell = 20 \cdot \frac{\sqrt{2}}{2}$

$= \frac{20\sqrt{2}}{2}$

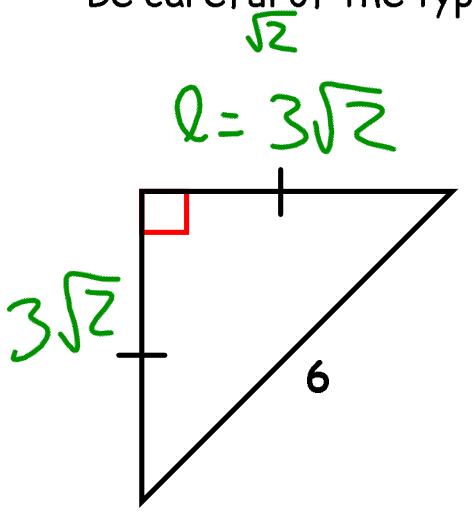
$= 10\sqrt{2}$

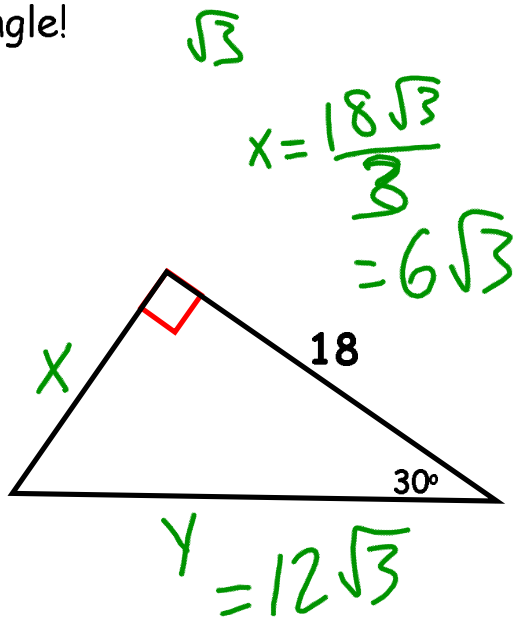


Section 7.4 - Special Right Triangles Target 7B

You try:

Be careful of the type of triangle!





Section 7.4 - Special Right Triangles Summary

Target 7B

January 29, 2014

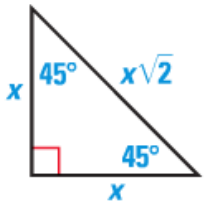
THEOREM *For Your Notebook*

THEOREM 7.8 45°-45°-90° Triangle Theorem

In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{2}$ times as long as each leg.

hypotenuse = leg • $\sqrt{2}$

Proof: Ex. 30, p. 463



THEOREM *For Your Notebook*

THEOREM 7.9 30°-60°-90° Triangle Theorem

In a 30°-60°-90° triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is $\sqrt{3}$ times as long as the shorter leg.

hypotenuse = 2 • shorter leg

longer leg = shorter leg • $\sqrt{3}$

Proof: Ex. 32, p. 463